

# Commission 3: WEGENER 2014 – Measuring and Modelling Our Dynamic Planet



IAG Commission 3 'Earth Rotation and Geodynamics' studies the entire range of physical processes associated with how the Earth moves and deforms in response to internal and external forces. This includes the entire range of phenomena associated with Earth rotation and Earth orientation such as polar motion, length of day, precession and nutation, as well as tidal processes such as solid Earth and ocean loading tides, and crust and mantle deformation associated with tectonic motions and isostatic adjustment. The purpose of Commission 3 is to promote, disseminate and, where appropriate, help to co-ordinate research in this broad arena.

Sub-Commission 3.5 of IAG Commission 3 'Tectonics and Earthquake Geodesy', aims to encourage co-operation between all geoscientists studying the greater Mediterranean region and beyond with a focus on mitigating earthquake, tsunami, and volcanic hazards. In support of this, periodic workshops and meetings are organised with special emphasis on integrating the broadest range of Earth observations, sharing analysis and modelling approaches, and promoting the use of standard procedures for geodetic data acquisition, quality evaluation and processing. The next such meeting, the 17<sup>th</sup> General Assembly of WEGENER, will be held at the University of Leeds, UK, from 1-4 September 2014.

The scientific programme of WEGENER 2014 will consist of the following sessions:

## **Session 1: Continental Faulting and the Earthquake Cycle**

New geodetic, paleoseismic or other geophysical and geological observations with modelling of the crustal deformation relevant to the earthquake cycle.

## **Session 2: Giants of the Deep: Anatomy and Physiology of a Megathrust Zone**

Use of geodesy to increase our understanding of (i) the anatomy of subduction zones, and (ii) their physiology, as well as complementary approaches such as seismology, marine geomorphology and fieldwork, perhaps combined with geodesy.

## **Session 3: Technical Developments in Geodetic Observing Systems**

New single or multi-techniques for Earth deformation monitoring or exploitation of multi-sensor integration.

## **Session 4: Geodynamics and Potential Fields**

Geodetic analysis of spaceborne gravity data including methods to identify hidden signals, new methods of mitigating instrument or de-aliasing errors, extraction of highest resolution signals from data, new numerical techniques to handle the increasing precision, and other methods that provide greater insights into the information content in gravity remote sensing datasets. Confrontation of gravity observations with other geodetic observations (GNSS, InSAR).

## **Session 5: Surface Processes**

State-of-the-art methods for quantifying the rates and processes of landscape evolution, constraining landform kinematics, and assessing the external driving forces of climate, tectonics and humans on the landscape, especially concerning landslides, glaciers and coastal environments.

## **Session 6: Volcanic/Magmatic Processes and Rift Zones**

All aspects of volcanic and magmatic deformation across all tectonics settings (rifts, subduction, hotspots), including observation, modelling and integration of geodetic results with information from other fields such as seismology, petrology, hydrology and tectonics.

## **Session 7: Glacial Isostatic Adjustment and Sea Level Rise**

Quantification of sea level change at any spatial and temporal scale, analysis of the impact of changes in the solid Earth on sea level, and bridging the gap between different disciplines such as geodesy, geology, oceanography, glaciology and solid Earth geophysics.

